

## Two Colorado Plant Lice (Hemip.-Homop.).

By C. P. GILLETTE, Fort Collins, Colorado.

(Plate XI.)

### *Asiphum pseudobyrsa* Walsh.

*Byrsocrypta pseudobyrsa* Walsh:—Proc. Ent. Soc. Phil., Vol. I, p. 306, 1862.

*Pemphigus pseudobyrsa* Walsh:—Proc. Ent. Soc. Phil., Vol. VI, p. 208, 1866. Thomas:—Rept. Ent. Ill., Vol. VIII, p. 151, 1880. Oestlund:—Aph. of Minn., p. 24, 1887. Packard:—Forest Insects, p. 434, 1890. Hunter:—Aph. of N. A., p. 79, 1901.

*Schizoncurea populi* Gill:—Ent. News, Vol. XIX, p. 1, 1908.

This species, described by Walsh more than fifty years ago, seems to have no recorded observations upon it since, except for the one which was made by the writer in ENTOMOLOGICAL NEWS for January, 1908, where the winged migrants, found in company with an apterous form of a species of *Chermes* upon the bark of the Balm of Gilead, were taken to be the alate form of the same louse.

Figures A and B of Plate XI were used in that paper in connection with the description of the supposed new species. Figures C, D and E of the same original plate (Vol. XIX, Pl. I), used to illustrate the apterous form, I still believe represented a new species which we shall now have to name *Chermes populi*. The alate form of this species I have never seen, though the apterous lice are very common on cottonwood bark in Colorado and especially on the western slope about Grand Junction.

*Asiphum pseudobyrsa* has been taken several times by Mr. L. C. Bragg about Fort Collins, Boulder and Denver upon the leaves of *Populus coccinea* and I have also received specimens from Mr. Asa C. Maxson from the same tree at Longmont, Colorado.

This species is a true *Asiphum*, the young lice all leaving the stem-mother gall, which is a small almond-shaped pocket about midway on the midrib of the leaf, very soon after being born, and locating on the under or ventral surface. The larvae locate along the main veins into which they insert their beaks

and their bodies soon become snowy white with a dense covering of short wax threads. See Figure D, Plate XI.

All of the second generation lice become winged. An infested leaf brought to the laboratory by Mr. Bragg, June 17, 1913, had one vigorous fundatrix in the gall with a few first instar young, and outside the gall a large number of second generation lice, two of which had developed wings, probably the first of the year. This leaf is shown in two views at Figures C and D.

Another species, *gravicornis* Patch, described in Bulletin 213, Maine Experiment Station, is very similar in its appearance upon the leaf, but is quite distinct.

*The Fundatrix* (Plate XI, Figure E).

General color a yellowish olive green, lighter over the middle portion of the abdomen; covered more or less heavily with white powder, and some threads about the margins of the body, especially posteriorly; head, eyes and tarsi blackish; legs and antennae dusky; rather broadly oval in form, when fully adult measuring about 4 by 3 millimeters; antenna .55 mm., five-jointed, joint III longest, being a little shorter than joints IV and V together without spur, joint IV shortest, joint II one-half as long as III; permanent sensoria ciliated; beak very short; hind femur and tibia each about .50.

Proportionate lengths of the joints of eight antennae of stem-mothers are as follows:

Joints	I	II	III	IV	V with spur
	10	13	25	10	20
	10	13	25	11	19
	10	11	20	8	16
	10	11	22	8	18
	10	12	22	8	19
	10	12	21	9	19
	10	12	20	9	20
	10	12	23	7	19
Averages	10	12	22.25	8.75	18.75

*Alate Fundatrigenia*, Plate XI, figures A and B.

The description given by the writer in ENTOMOLOGICAL NEWS referred to above was as follows:

*Winged Female*.—Length of fore-wing, 3.50 to 3.75 mm.; hind-wing, 2.35 to 2.75 mm. Length of body, 1½ to 2 mm. Antennae, 6-jointed; length, .8 mm. Joints 1 and 2, short and stout, the 2nd a

little longer than broad; 3rd, longest, equaling 4th and 5th together; 5th, a trifle longer than 4th; and 6th distinctly longer than 5th. The proportions of the four distal joints are about as follows: 21, 9, 11, 15. Total length of antenna a little less than one-half length of body. Compound eyes, ocelli, abdomen, tips of tarsi and antennae, and more or less of the thorax above, dusky to black, otherwise pale yellow. The anterior wing has a very distinct, though narrow, black line extending from the base along the subcostal nerve, but a little beneath it and terminating on the costal margin just beyond the stigma. A similar black line starts on the anal margin of the hind-wing close to the body and extends forward and outward to meet the costal nerve and then turns at an acute angle back to the costal margin close to the body. Body and wings are powdered with a white secretion and from thorax and abdomen a white waxy secretion forms in long, slender threads, nearly or quite hiding the body. Antennal spur of 6th joint not over 1-5 length of joint and with a large sensorium at its base, also large oval sensoria near distal ends of joints 4 and 5, and along the underside of joint 3, where there are about 6."

The specimens taken the past summer differ from the above by being somewhat larger, the length of body in plump specimens measuring 3 mm., and the antennae measuring .90. The sensoria on joint III of the antenna are almost uniformly 5, and on joint III, 2, but in some examples they are rather difficult to see well. There is a strong spur near the base of joint III, which does not show in the original figure, but has been added on Plate XI, figure A. The permanent sensoria are ciliated.

Proportionate lengths of antennal joints of 14 alate lice ran as follows:

Joints	I	II	III	IV	V	VI with spur
	10	10	34	16	19	26
	10	11	35	16	20	28
	10	11	36	18	19	26
	10	11	35	16	21	28
	10	11	35	17	18	25
	10	11	34	15	18	26
	8	10	30	16	18	27
	10	11	38	17	22	29
	10	11	34	15	19	27
	10	11	35	16	19	23
	9	10	30	14	16	25
	10	10	33	14	18	22
	9	9	32	15	17	23
	9	9	32	14	16	24
Averages	9.64	10.43	33.79	15.64	18.57	25.64

It is probable that this louse has an alternate host, as the alate form, the second generation, all leave the cottonwoods.

Our records on this louse in Colorado are as follows:

Grand Junction, June 16, 1907; Migrant; Recorded by C. P. Gillette; Host, *Populus candicans*.

Rocky Ford, May 27, 1908; Fundatrix and 2nd generation; Recorded by L. C. Bragg; Host, *Populus coccinea*.

Denver, June 16, 1911; Fundatrix and alate migrants; Recorded by L. C. Bragg; Host, *Populus coccinea*.

Fort Collins, June 17, 1913; Fundatrix and alate migrants; Recorded by L. C. Bragg; Host, *Populus coccinea*.

Longmont, June 17, 1913; Fundatrix and immature young; Recorded by Asa C. Maxson; Host, *Populus coccinea*.

Fort, Collins, June 21, 1913; Migrants; Recorded by L. C. Bragg; Host, *Populus coccinea*.

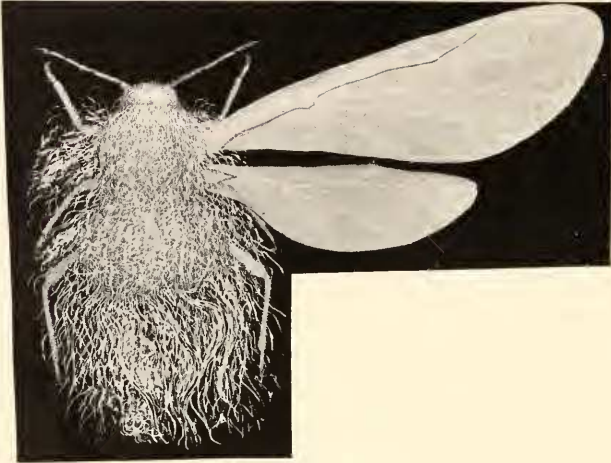
#### *Phyllaphis quercifoliae* n. sp.

In Bulletin 31, page 116 (1895), of the Colorado Experiment Station, Mr. Cowen gave a brief description of a woolly plant louse found upon the under side of the leaves of scrub oaks in Colorado, which he thought to be Fitch's *Eriosoma querci*, but which he placed in the genus *Schizoneura*. Mr. Davis in his paper in ENTOMOLOGICAL NEWS, Volume XXII, 1911, page 242, accepts Cowen's reference of the species, having no examples for study himself.

This is a common louse, which I have often seen on oaks in the mountainous sections of Colorado. A rather careful study of the material in hand has convinced me that the Colorado form is a distinct and new species and not the species described or referred to by Fitch, Thomas, Oestlund and Davis and that it is probably distinct from the species recorded by Clarke and Davidson found on the live oaks of California. I am, therefore, offering the notes and descriptions given below. While I am referring this species to the genus *Phyllaphis*, it does not have the short beak, knobbed cauda, or short second antennal joint found in *P. fagi*, the type of the genus, and the hind wings have but one transverse vein, and any of these characters might be considered of generic rank.

The specimens here described were taken at Manitou, Colorado, September 20, 1913, by the writer, on native scrub oak,





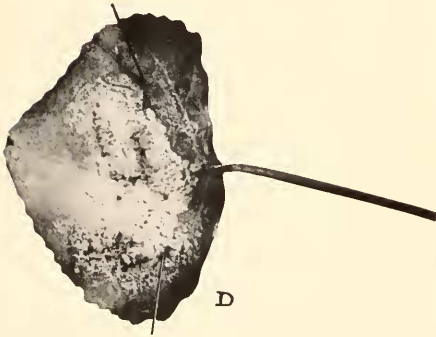
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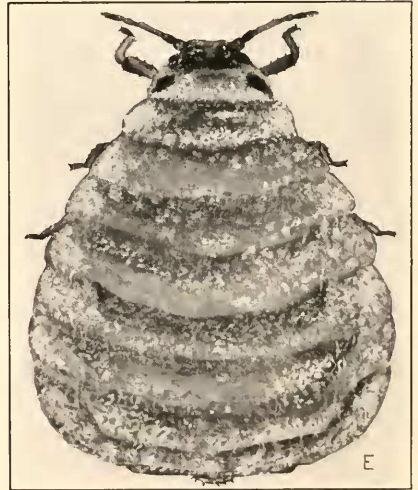
A



C



D



E

COLORADO PLANT LOUSE (*ASIPHUM PSEUDOBYRSA*).—GILLETTE.

where the species was very common, infesting, for the most part, the under (ventral) side of the leaves. The lice were readily detected by the cottony secretion which they produce in great profusion. I found very few of the summer form, but large numbers of oviparous females in all stages of development and also a large number of pupae, all of which were developing into males. A single winged male was also found. The lice seemed to prefer a folded leaf, and colonies were frequently found in folds that had been produced by leaf-rollers or other causes. The punctures of the insect do not seem to have much, if any, effect to cause the curling of the leaves.

*Apterous Virgogenia.* This form had mostly disappeared. The examples taken were light green, the color being strongest along the lateral margins of the body; body everywhere covered more or less densely with loose cottony secretion; eyes bright red; head and thoracic segments, antennae, except the terminal segments which are somewhat dusky, and legs yellowish to yellowish brown in color; length of body, 1.10; antenna, .50; joints II, III, IV, and V vary but little in length; joint III is usually the longest of those mentioned, but always shorter than joint VI with the spur; joint IV usually shortest, and even joint II sometimes exceeds joint III in length. The only sensoria present are the permanent ones on joints V and VI. The length of the body as given above may be too little, as the specimens taken are rather old and the body segments are somewhat contracted.

*Oviparous Female.* The color in this form varies, some examples being uniform straw yellow throughout, while others are as uniformly pink, and others are pale yellowish green. Body everywhere covered more or less densely with loose cottony secretion, the wax plates showing very plainly as minute dark dots upon the dorsum, there being three longitudinal rows on either side of the body, with the usual reduction in numbers upon the thorax and terminal segments of the abdomen; two large circular wax plates of remarkable size occur on the under side of the abdomen upon joints V and VI and partially covering joint VII, each of which has two pores or clear spots in it. These plates are covered with a dense deposit of short wax threads making two very conspicuous white patches which may be seen projecting beyond the lateral margins of the abdomen when viewed from above; eyes bright red; antennae, legs, head, anal plate and gland plates dusky in color; hind tibiae and antenna quite dark; hind tibiae much swollen and set with a large number of oval scent glands; beak just surpassing the second pair of coxae, the tip only being black; pores not